

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-4 (Cancelled)

5. (Previously Presented) A method of cleaning one or more membranes normally immersed in water containing solids in a tank, the one or more membranes arranged into one or more modules such that permeate sides of the one or more membranes enclose a space in communication with one or more headers of the one or more modules, and used to produce a filtered permeate comprising:

performing cleaning events having the steps of:

(a) stopping permeation;

(b) after step (a), and before resuming permeation, flowing a chemical cleaner to the one or more headers in a series of pulses, wherein the pulses are separated from each other by waiting periods in which the flow of chemical cleaner is stopped;

(c) after step (b), resuming permeation;

wherein

(d) the membranes remain immersed in the water containing solids while the chemical cleaner flows to the one or more headers;

(e) the outside of the membranes is in fluid communication with the water containing solids; and,

(f) during step (b), all chemical cleaner reaching the one or more headers remains in the enclosed space of the one or more modules or flows through the walls of the membranes in a direction opposite to the direction in which permeate normally passes through the walls of the membranes.

6. (Previously Presented) The method of claim 5 wherein the cleaning events are repeated generally periodically at a frequency between 1 and 7 times per week between more intensive first cleanings performed at least 15 days apart to increase the permeability of the membranes.

7. (Previously Presented) The method of claim 6 wherein

(i) each cleaning event has a CT which is equal to (A) the concentration of the chemical cleaner expressed as an equivalent concentration of NaOCl in cleaning efficacy multiplied by (B) the time during which the chemical cleaner remains effective in the area adjacent the membranes; and,

(ii) the cleaning events have a weekly CT which is equal to the sum of the CT's of the one or more cleaning events performed in a week and is between 2,000 minutes•mg/L and 30,000 minutes•mg/L;

8. (Previously Presented) The method of claim 7 wherein the weekly CT is between 2,000 minutes•mg/L and 20,000 minutes•mg/L.

9. (Previously Presented) The method of claim 6 wherein the permeate is intended for drinking water and the weekly CT is between 5,000 minutes•mg/L and 10,000 minutes•mg/L.

10. (Previously Presented) The method of claim 6 wherein the water containing solids is a wastewater and the weekly CT is between 10,000 minutes•mg/L and 30,000 minutes•mg/L.

11. (Previously Presented) The method of claim 5 wherein the pulse steps last for between 10 seconds and 100 seconds and the waiting periods last for between 50 seconds and 6 minutes.

12. (Previously Presented) The method of claim 5 wherein the pulse steps last for at least 10 seconds and the waiting periods last for at least 50 seconds.

13. (Previously Presented) The method of claim 5 wherein the length of the pulse steps is selected to provide chemical cleaner in an area in the membranes and in an area in tank water adjacent the outside of the membranes with an initial efficacy and the length of the waiting periods is selected to provide substantially effective chemical cleaner in an area in the membranes and an area in tank water adjacent the outsides of the membranes during the waiting period.

14. (Previously Presented) The method of claim 5 wherein the membranes are hollow fibre membranes and the pressure of the cleaning chemical in the pulse steps is between 5 kPa and 55 kPa above the pressure on the outside of the membranes.

15. (Previously Presented) The method of claim 14 wherein the flow through the membranes during the pulse steps is between 8.5 and 51 L/m²/h.

16. (Previously Presented) The method of claim 5 wherein chemical cleaner is removed from the tank through a drain in the tank before permeation is resumed.

17. (Previously Presented) The method of claim 16 wherein substantially all of the chemical cleaner is removed from the tank through a drain in the tank before permeation is resumed.

Claims 18-38 (Cancelled)